

**REMARKS/ARGUMENTS**

The present Amendment is in response to the Office Action having a mailing date of January 22, 2007. Claims 1-37 and 40 are pending in the present Application. Applicant has amended claims 1, 8, 11, 12, 13, 20, 23, 24, 25, 32, 35, 36, and 40. Consequently, claims 1-37 and 40 remain pending in the present Application.

In the above-identified Office Action, the Examiner objected to FIG. 3 because the numbers for the abscissa of the plot were overlapped by the text. Applicant has provided herewith a replacement drawing sheet in which the numbers for the abscissa do not overlap the text. Accordingly, Applicant respectfully submits that the Examiner's objections to FIG. 3 have been addressed.

In the above-identified Office Action, the Examiner indicated that claims 8, 11, 12, 20, 23, 24, 32, 35, and 36 contain allowable subject matter. In the above-identified Office Action, the Examiner also indicated that claims 9, 10, 21, 22, 33, and 34 were allowed. Applicant welcomes the allowance of claims 9, 10, 21, 22, 33, and 34 and the indication that claims 8, 11, 12, 20, 23, 24, 32, 35, and 36 contain allowable subject matter.

Applicant has amended claim 1 to include, in the alternative, the limitations of claims 8, 11, and 12 and any intervening claims. Applicant has amended independent claim 13 to include, in the alternative, the limitations of claims 20, 23, and 24 and any intervening claims. Applicant has amended independent claim 25 to include, in the alternative, the limitations of claims 32, 35, and 36 and any intervening claims. Applicant has also amended claims 1, 13, and 25 to recite first and second magnetically soft shields, first and second electrically insulating read gaps, and first and second uniform thicknesses. However, Applicant notes that there is no requirement in the claims or

indicated in the specification, that the first and second magnetically soft shields, first and second electrically insulating read gaps, and first and second uniform thicknesses must be different. Applicant also amended claim 40 to include, in the alternative, limitations analogous to claims 2, 3, 7 and limitations analogous to claim 14. Accordingly, Applicant respectfully submits that no new matter is added.

In the above-identified Office Action, the Examiner indicated that claims 8, 11, 12, 20, 23, 24, 32, 25, and 26 contain allowable subject matter. Applicant has amended claims 1, 13, and 25 to include the limitations of claims 8, 11, and 12, claims 20, 23, and 24, and claims 32, 35, and 36, respectively. Accordingly, Applicant respectfully submits that claims 1, 13, and 25 are allowable as currently presented.

In the above-identified Office Action, the Examiner rejected claims 1, 13, and 40 under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,731,479 (Ooshima I).

Applicant respectfully traverses the Examiner's rejection. Applicant has amended claims 1 and 13 to recite, in the alternative, the limitations of claims 8, 11, and 12, claims 20, 23, and 24, and claims 32, 35, and 36, respectively. Accordingly, Applicant respectfully submits that claims 1 and 13 are allowable as currently presented.

Claim 40 recites a magnetic sensor in which the underlayer has at least one of the following sets of characteristics: (a) the underlayer has a first thickness that is at least eighty-percent as large as the thickness of the adjacent magnetically hard layer; (b) the underlayer has a second thickness that is at least as large as the thickness of the adjacent magnetically hard layer; (c) the underlayer and magnetically hard layer have a combined thickness that is at least about three-quarters the height of the junction; and

(d) the underlayer has a fourth thickness that substantially aligns the magnetically hard layer and the magnetically soft layer.

The combination of the recited thicknesses and positions in claim 40, particularly in conjunction with the recited junction angle, may allow the hard magnetic layer to be aligned with the free layer. Specification, paragraph 24. This alignment may improve performance of the magnetic sensor. Specification paragraph 24. This alignment, and attendant improvement in performance, may be achieved for smaller sensor even though the dimensions of the sensor may not scale. Specification, paragraphs 26-27.

In contrast, Applicant can find no mention in Ooshima I of the recited thicknesses or relative positions. Further, as discussed above, sensor dimensions may not scale as the size of the sensor decreases. Thus, simply taking the sensor of Ooshima I and scaling the sensor up or down in a routine manner may not achieve the alignment between the hard magnetic layer and the free layer. Routine scaling may, therefore, not obtain the attendant improvement in performance. Ooshima I thus fails to teach or suggest the recited thicknesses and relative positions.

Further, Applicant respectfully submits that a conclusion that the recited ranges are obvious in light of Ooshima I would be the result of applying the improper “obvious to try” rationale. See MPEP 2145(B) (indicating that “[a]n applicant may argue the examiner is applying an improper ‘obvious to try’ rationale in support of an obviousness rejection.” also stating that “[t]he admonition that ‘obvious to try’ is not the standard under § 103 has been directly mainly at two kinds of error. In some cases, what would have been ‘obvious to try’ would have been to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no

indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful . . . ' *In re O'Farrell*, 853 F.2d 894,903, 7USPQ2d 1673, 1681 (Fed. Cir. 1988) (citations omitted). . " There are numerous combinations of positions and relative thicknesses of the underlayer, free layer, and magnetically hard layer. There is no indication in Ooshima I that the recited combinations of these can or should be employed. Consequently, a conclusion that Ooshima I teaches or suggests the magnetic sensors recited in claim 40 involves improper hindsight. Accordingly, Applicant respectfully submits that claim 40 is allowable over the cited references.

In the above-identified Office Action, the Examiner rejected claims 2-3, 7, 14-15, 19, 25-27, 31, and 37 under 35 U.S.C. § 102 as being unpatentable over Ooshima I.

Applicant respectfully traverses the Examiner's rejection. Claims 2-3, and 7, depend upon independent claim 1. Claims 14-15 and 23-24 depend upon independent claim 13. Claims 26-27, 31 and 27 depend upon independent claim 25. Accordingly, Applicant respectfully submits that claims 2-3, 7, 14-15, 19, 25-27, 31, and 37 are allowable as currently presented.

Furthermore, Applicant respectfully submits that claims 2-3, 14-15, 19, 26-27 and 31 are separately allowable over the cited references. Claims 2-3, 14-15, 19, 26-27 and 31 recite the relative thicknesses and/or positions of the underlayer, the magnetically hard layer, and the free layer. Applicant has found no mention in Ooshima I of the recited thicknesses or relative positions. Moreover, for at least the reasons discussed above with respect to claim 40, Ooshima I fails to teach or suggest the magnetic sensors recited in claims 2-3, 7, 12, 15, 19, 24, 27, 31, and 36 involves improper hindsight. Accordingly,

Applicant respectfully submits that claims 2-3, 14-15, 19, 26-27 and 31 are separately allowable over the cited references.

In the above-identified Office Action, the Examiner rejected claims 4-6, 14, 16-18, 26, and 28-30 under 35 U.S.C. § 103 as being obvious in light of Ooshima I in view of U.S. Patent Application Publication No. 20030030947 (Ooshima II).

Applicant respectfully traverses the Examiner's rejection. Claims 4-6 depend upon independent claim 1. Claims 14 and 16-18 depend upon independent claim 13. Claims 26 and 28-30 depend upon independent claim 25. Accordingly, for at least the reasons discussed above, Applicant respectfully submits that claims 4-6, 14, 16-18, 26, and 28-30 are allowable as currently presented.

Applicant's attorney believes that this application is in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicant's attorney at the telephone number indicated below.

Respectfully submitted,

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Date

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